

AMENDMENTS TO THE CLAIMS

1. (Original) A method of compensating mask/reticle data for lithographic process distortions, comprising the acts of:

reading a first set of mask/reticle data that defines at least one feature to be created lithographically;

performing a simulation of the etch effects that would occur if a wafer is created using a mask/reticle corresponding to the first set of mask/reticle data;

using the results of the etch simulation to create a second set of mask/reticle data that defines at least one new or modified feature to be created lithographically; and

performing optical process correction (OPC) using the second set of mask/reticle data as an input to create a third set of mask/reticle data.

2. (Original) The method of Claim 1, comprising the additional act of exporting the third set of mask/reticle data to a mask/reticle writer to manufacture a corresponding mask/reticle.

3. (Currently amended) The method of Claim 1, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

4. (Currently amended) The method of Claim 1, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

5. (Currently amended) A method of compensating mask/reticle data for lithographic process distortions, comprising the acts of:

reading a first set of mask/reticle data that defines at least one feature to be created lithographically;

performing a simulation of the etch effects that would occur if a wafer is created using a mask/reticle corresponding to the first set of mask/reticle data;

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calculating etch biases from the etch simulation result; and  
applying the previously calculated etch biases within an optical process correction (OPC) loop that adjusts the mask/reticle data for optical/resist process distortions.

6. (Currently amended) The method of Claim 5, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

7. (Currently amended) The method of Claim 5, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

8. (Currently amended) A computer-readable media having a sequence of programmed instructions stored thereon that when executed by a computer causes the computer to perform the acts of:

reading a first set of mask/reticle data that defines at least one feature to be created lithographically;

performing a simulation of the etch effects that would occur if a wafer is created using a mask/reticle corresponding to the first set of mask/reticle data and using the results of the etch simulation to create a second set of mask/reticle data that defines at least one new or modified feature to be created lithographically; and

performing optical process ~~corrections~~ correction (OPC) on the second set of mask/reticle data.

9. (Currently amended) The computer-readable media of Claim 8, wherein the sequence of programmed instructions causes the computer to export OPC corrected mask/reticle data to a mask/reticle [[data]] writer to manufacture a corresponding mask/reticle.

10. (Currently amended) The computer readable media of Claim 8, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

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11. (Currently amended) The computer readable media of Claim 8, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

12. (Currently amended) A computer readable media having a sequence of programmed instructions stored thereon that when executed by a computer causes the computer to perform the acts of:

reading a first set of mask/reticle data that defines at least one feature to be created lithographically;

performing a simulation of etch effects that would occur if a wafer is created with a mask/reticle corresponding to the first set of mask/reticle data;

calculating etch biases from the etch simulation; and

applying the previously calculated etch biases in an optical process correction (OPC) loop that adjusts the mask/reticle data for optical/resist process distortions.

13. (Currently amended) The computer readable media of Claim 12, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

14. (Currently amended) The computer readable media of Claim 12, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

15. (Original) A method of producing data for a lithographic mask/reticle, comprising the acts of:

receiving a set of data for a target layer that defines a pattern of objects to be created lithographically;

performing an etch simulation of a wafer formed in accordance with the target layer data;

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calculating an error in the pattern of objects formed on the wafer as a result of etch distortions;

using the error to produce a second set of data defining a new target layer; and providing the data for the new target layer as an input to an optical process correction (OPC) algorithm to produce data for a mask/reticle that, when used in a lithographic process, will produce a set of objects on a wafer that substantially matches the new target layer.

16. (Currently amended) The method of Claim 15, wherein the optical process correction algorithm ~~corrects the produces a~~ produces a third set of data that compensates for optical and resists distortions.

17. (Currently amended) In the method of Claim [[15]] 16, wherein the optical process correction algorithm simulates optical process distortions in a lithographic process; and ~~adjusting~~ adjusts the third set of data that defines a pattern of objects to be created lithographically until a simulation of a pattern created lithographically from the third set of data substantially matches the new target layer.

18. (Currently amended) The method of Claim 15, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

19. (Currently amended) The method of Claim 15, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

20. (Original) A device that is formed on a wafer created by the acts of:  
reading a first set of mask/reticle data that defines at least one feature to be created lithographically;  
performing a simulation of the etch effects that would occur if a wafer is created using a mask/reticle corresponding to the first set of mask/reticle data;

using the results of the etch simulation to create a second set of mask/reticle data that defines at least one new or modified feature to be created lithographically;

performing optical process correction (OPC) using the second set of mask/reticle data as an input to create a third set of mask/reticle data;

exporting the third set of mask/reticle data to a mask/reticle writer to manufacture a corresponding mask/reticle; and

using the mask/reticle to create the device on the wafer.

21. (Currently amended) The device of Claim 20, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

22. (Currently amended) The device of Claim 20, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

23. (Currently amended) A device that is formed on a wafer created by the acts of:

reading a first set of mask/reticle data that defines at least one feature to be created lithographically;

performing a simulation of the etch effects that would occur if a wafer is created using a mask/reticle corresponding to the first set of mask/reticle data;

calculating etch biases from the etch simulation result;

applying the previously calculated etch biases within an optical process correction (OPC) loop that adjusts the mask/reticle data for optical/resist process distortions;

exporting the adjusted mask/reticle data to a mask/reticle writer to create a corresponding mask/reticle; and

using the mask/reticle to create the device on a wafer.

24. (Currently amended) The device of Claim 23, in which the [[step]] act of performing a simulation includes accessing a set of predetermined rules for the etch process.

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25. (Currently amended) The device of Claim 23, in which the [[step]] act of performing a simulation includes accessing a table of predetermined values for the etch process.

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